

# PCE Chestnut Site Atlantic, Iowa

**Susan Fisher**  
**EPA Region 7**  
**Project Manager**



# Introductions

**Susan Fisher**

**On-Scene Coordinator**

**Ann Jacobs**

**Risk Assessor**

**Dan Nicoski**

**Hydrogeologist**

**Demetra Salisbury**

**Site Attorney**

**Pamela Houston**

**Community Engagement Specialist**

**Erin Harman**

**Environmental Health Specialist**



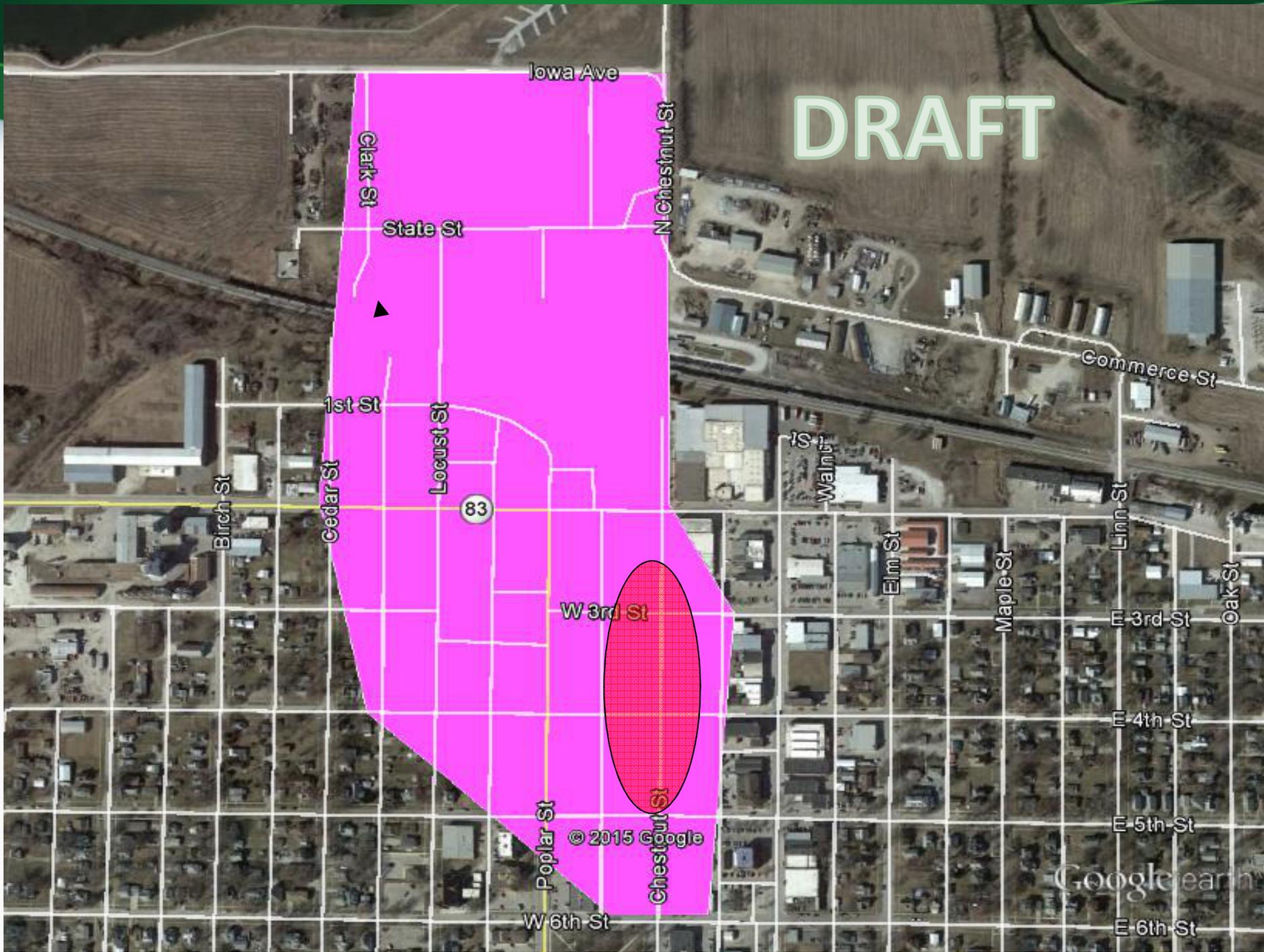
# *What is a Superfund Site?*

- Superfund is the name given to the environmental program established to address abandoned hazardous waste sites that possibly affect local ecosystems or people.
- It is also the name of the fund established by the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).
- Over the past 20+ years, Superfund has located and analyzed tens of thousands of hazardous waste sites, protected people and the environment from contamination at the worst sites, and involved states, local communities, and other partners in the cleanup process.
- <http://www.epa.gov/superfund/about.htm>

# *Site History*

- 2015: Tetrachloroethylene (PCE) was detected in groundwater during a PCE Former Dry Cleaners Site investigation.
- Evidence of additional historical dry cleaning operations along Chestnut Street.
- Several buildings along Chestnut street were sampled for vapor intrusion. Analytical results show PCE vapor above levels of health concerns.
- Vapor mitigation systems were installed in three locations.

DRAFT



Iowa Ave

Clark St

State St

N Chestnut St

1st St

Locust St

83

Birch St

Cedar St

Walnut St

Commerce St

W 3rd St

Elm St

Maple St

Linn St

Oak St

Poplar St

Chestnut St

E 3rd St

E 4th St

E 5th St

W 6th St

E 6th St

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Google Earth

## *Contaminants*

### **PCE (Tetrachloroethylene):**

- A man-made chemical that is widely used for dry cleaning clothes
- It evaporates easily into the air
- a colorless liquid with a mild, chloroform-like odor - has a sharp, sweet odor

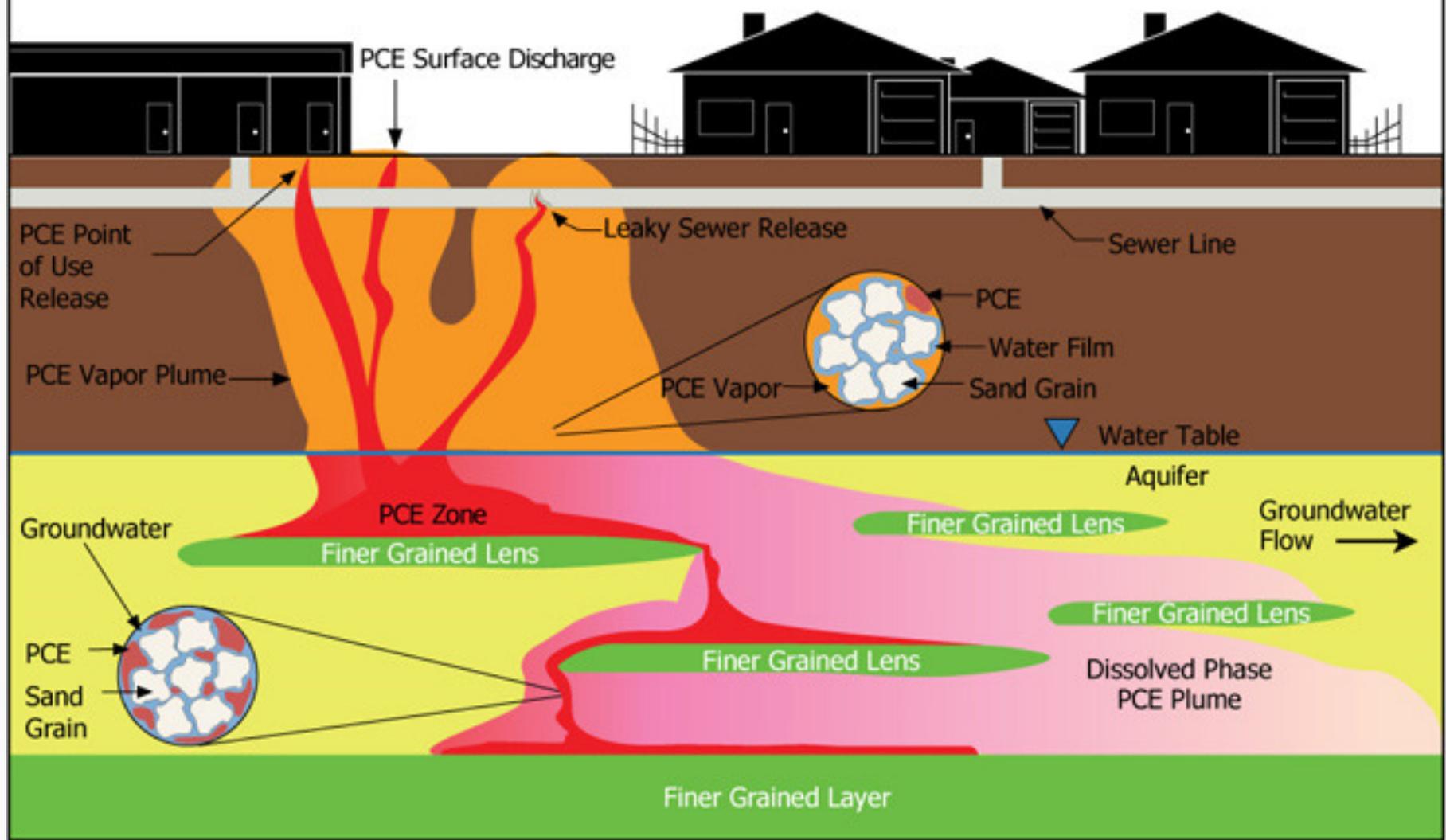
### **TCE (Trichloroethylene):**

- Remove grease from fabricated metal parts and in the production of some textiles.
- PCE degrades to TCE under certain circumstances
- A colorless or blue liquid with a chloroform-like odor - has a sharp, sweet odor

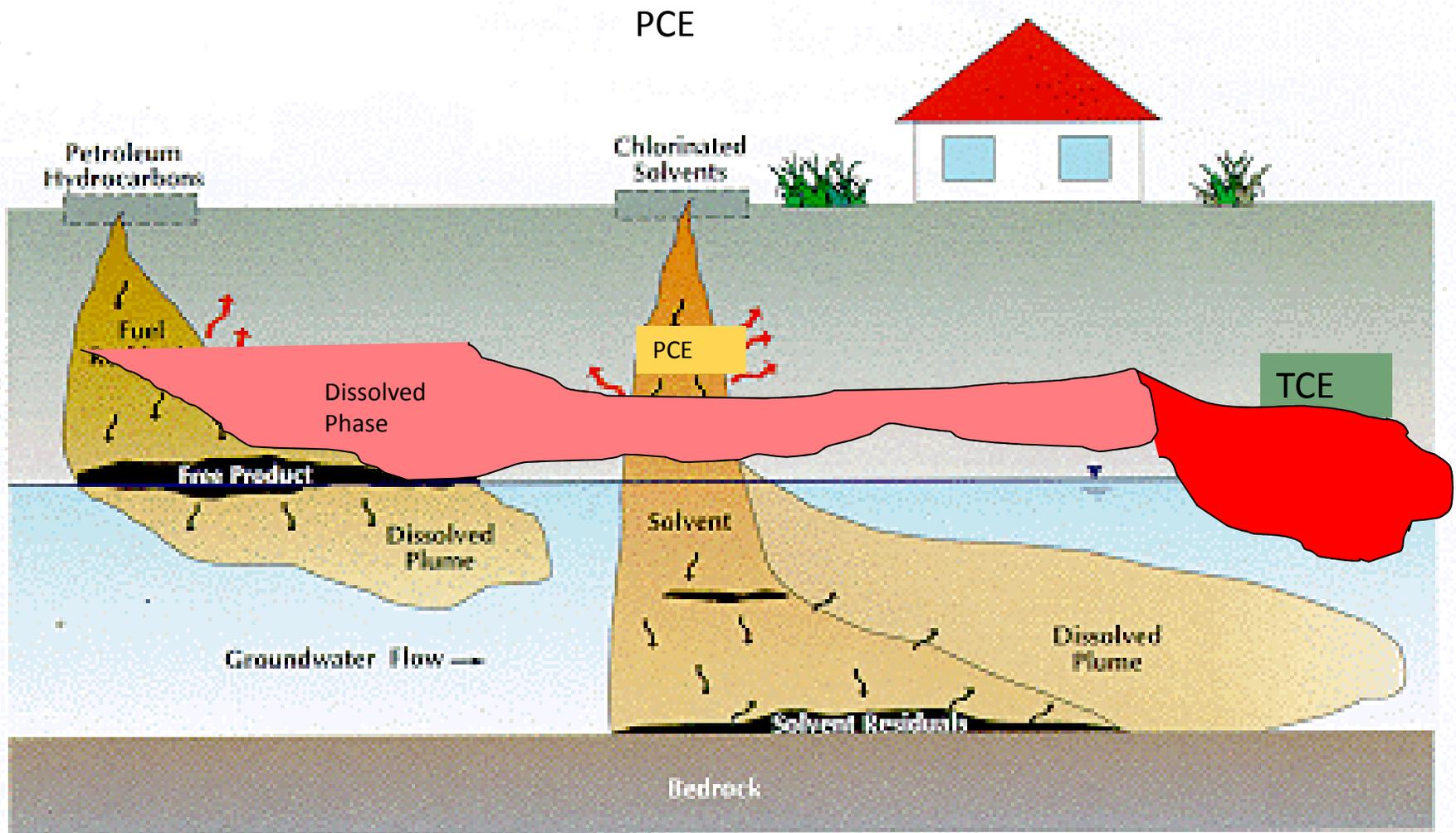
For more information about these chemicals go to:

**<http://water.epa.gov/drink/contaminants/basicinformation/>**

# The PCE Challenge



# *PCE Converts to TCE*



# *Health Effects of PCE*

## Cancer Risk

PCE is classified by U.S. EPA as “likely to be carcinogenic” to humans

Cancers associated with PCE exposure: bladder, non-Hodgkin’s lymphoma and multiple myeloma in human populations

## Noncancer Health Effects

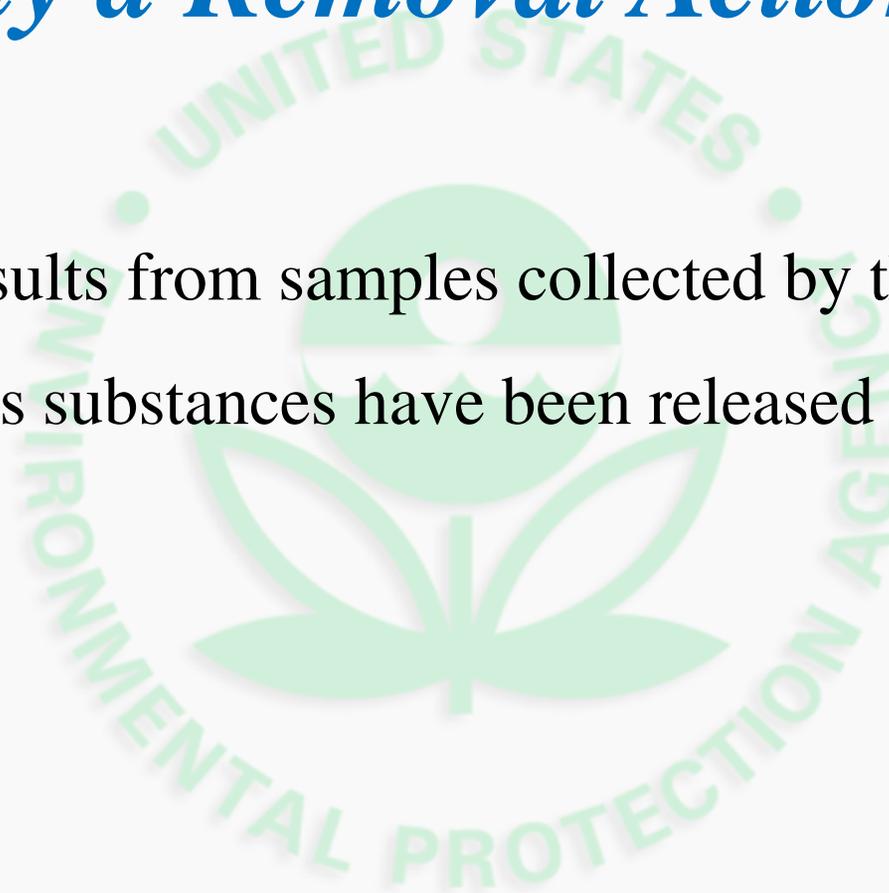
Long-term exposure from breathing air contaminated with PCE can result in neurological, kidney, liver, immunological, hematological, developmental, and reproductive effects

# *Health Effects of TCE*

- Cancer Risk
  - TCE is classified by U.S. EPA as “carcinogenic to humans”
  - Cancers associated with TCE exposure: kidney, non-Hodgkin’s lymphoma, and liver in human populations
- Noncancer Health Effects
  - Long-term exposure from breathing air contaminated with TCE can result in liver, kidney, neurological, reproductive, immunological, and developmental effects (fetal heart defects)

# *Why a Removal Action?*

Analytical results from samples collected by the EPA indicate that hazardous substances have been released into the environment.



# *What does a Removal Action entail?*

- ❑ Soil and groundwater sampling
  - Find source area(s)
  - Find the extent of the contamination in the soil and groundwater
  - Determine if contamination is affecting any other receptors – for example drinking water



ENVIRONMENTAL

TESTING

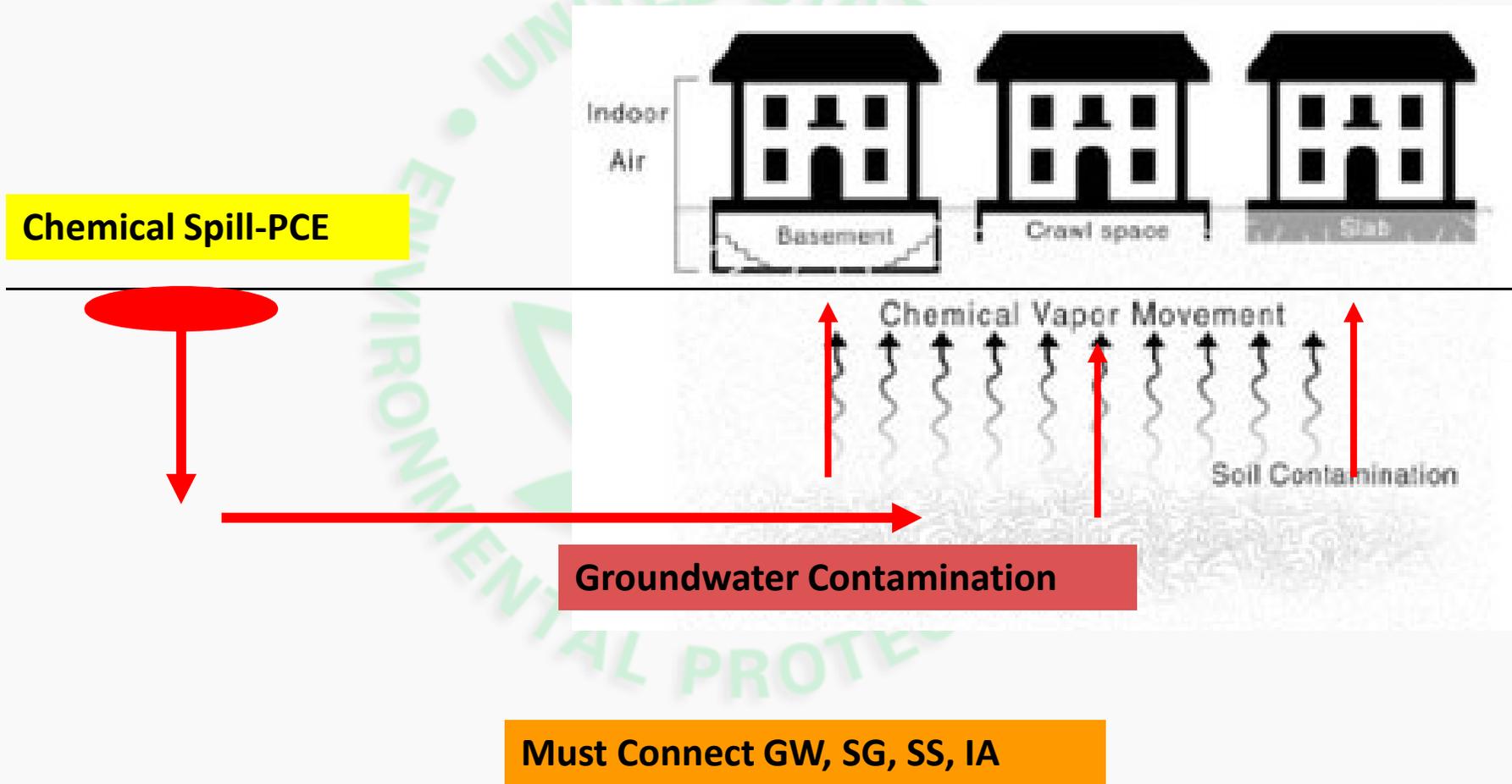
## *What does a Removal Action entail?*

- ❑ Sub-slab soil gas and indoor air sampling
- ❑ Installation of vapor mitigation systems in residential homes and businesses where PCE and/or TCE exceed the removal action levels for soil gas contaminants

## *Sub Slab and Indoor Air Sampling*



# What is Vapor Intrusion?



Chemical Spill-PCE

Groundwater Contamination

Must Connect GW, SG, SS, IA

# Vapor Abatement System Installation

## Radius of Influence Testing



**Radius of Influence testing = 96% success rate on initial installation at the Behr Site**

**Success = 30 & 90 day samples < IA screening level**

# Vapor Abatement System Installation

## Extraction Pipe into Slab



**Based on radius of influence testing, multiple extraction points may be necessary**  
**Note: Looking for entire slab to be under vacuum**

# Vapor Abatement System Installation

## Outside Fan and Vent



**Per local code, vent above highest window**

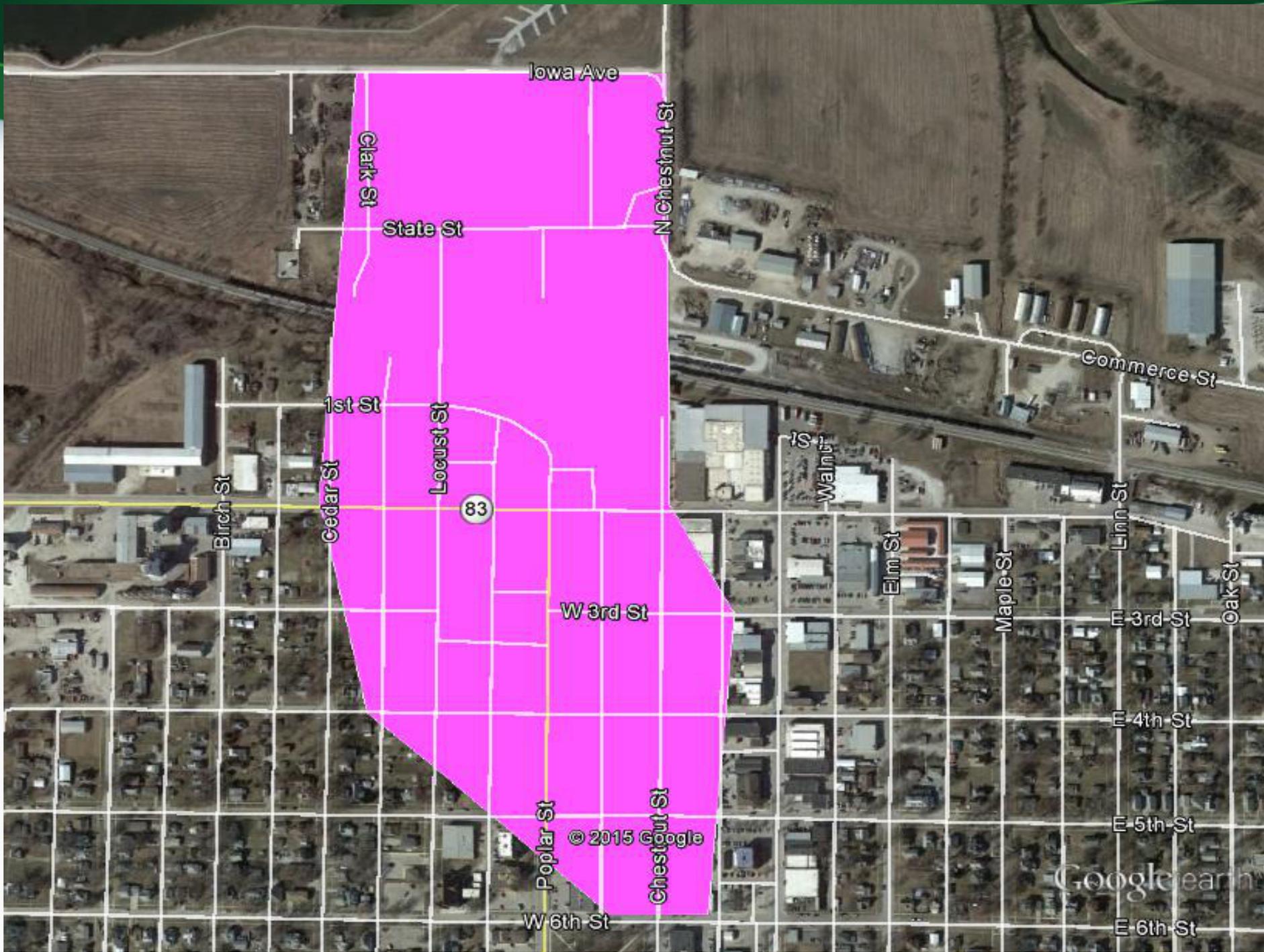




# Vapor Abatement System Installation

## Outside Fan and Vent





Iowa Ave

Clark St

N Chestnut St

State St

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1st St

Locust St

83

Walnut St

Birch St

Cedar St

Elm St

Linn St

W 3rd St

Oak St

E 3rd St

E 4th St

E 5th St

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Google Earth

Poplar St

Chestnut St

W 6th St

E 6th St

# *Your Chance to be Heard*

EPA's Community Involvement Program



# *What is Community Involvement?*

- Individuals potentially affected by a site have a voice in the cleanup process.
- EPA's Regional staff help communities get involved by providing:
  - Educational materials
  - Outreach activities
  - Site information
  - Training
  - Technical assistance
  - Other support

# *EPA's Community Involvement Goals*

- Keep you informed in the cleanup process.
- Provide opportunities for you to comment and provide input.
- Resolve community issues related to the site.



# *Community Involvement Programs*

- Technical Assistance Services for Communities (TASC)
- Meet with community to explain site information
- Interpret and explain health-related information
- Technical document review and interpretation
- Facilitate meetings



## *Ways the Public can Get Involved*

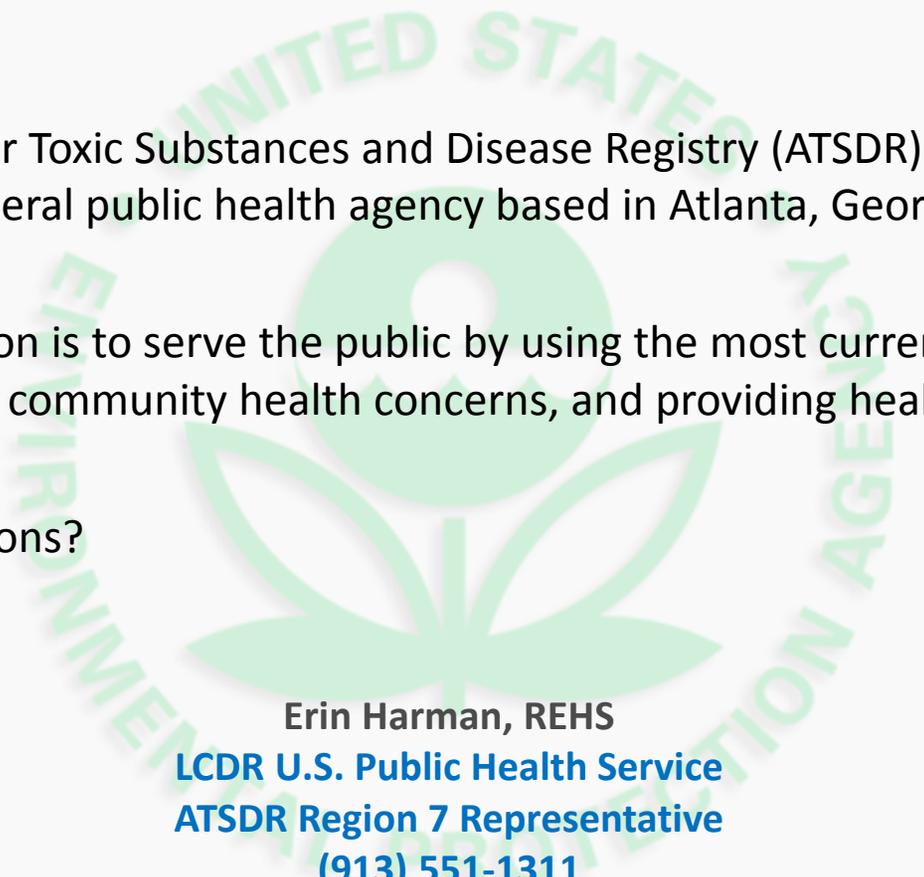
- Attend public meetings and hearings
- Participate in community information sessions
- Visit local information repository sites
- Contact your local Community Engagement Specialist and/or Site Manager

## *Contact Information*

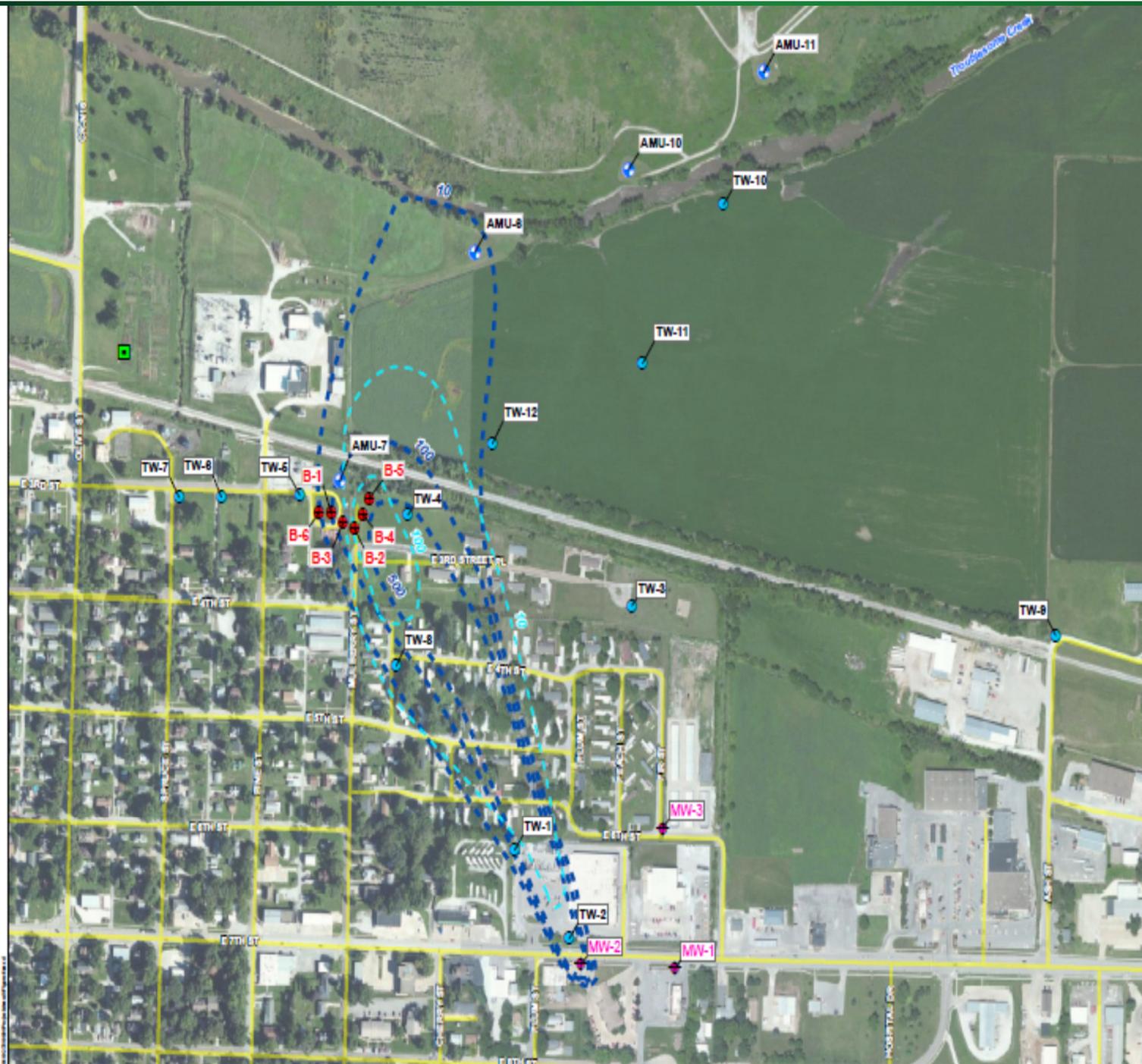
- For questions or additional information, please contact:
  - Pamela Houston
  - Community Involvement Coordinator
    - 1-800-223-0425
    - [Houston.pamela@epa.gov](mailto:Houston.pamela@epa.gov)

# ATSDR

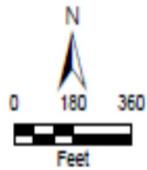
- The Agency for Toxic Substances and Disease Registry (ATSDR) is a non-regulatory federal public health agency based in Atlanta, Georgia.
- ATSDR's Mission is to serve the public by using the most current science, responding to community health concerns, and providing health education.
- Health Questions?



Erin Harman, REHS  
LCDR U.S. Public Health Service  
ATSDR Region 7 Representative  
(913) 551-1311



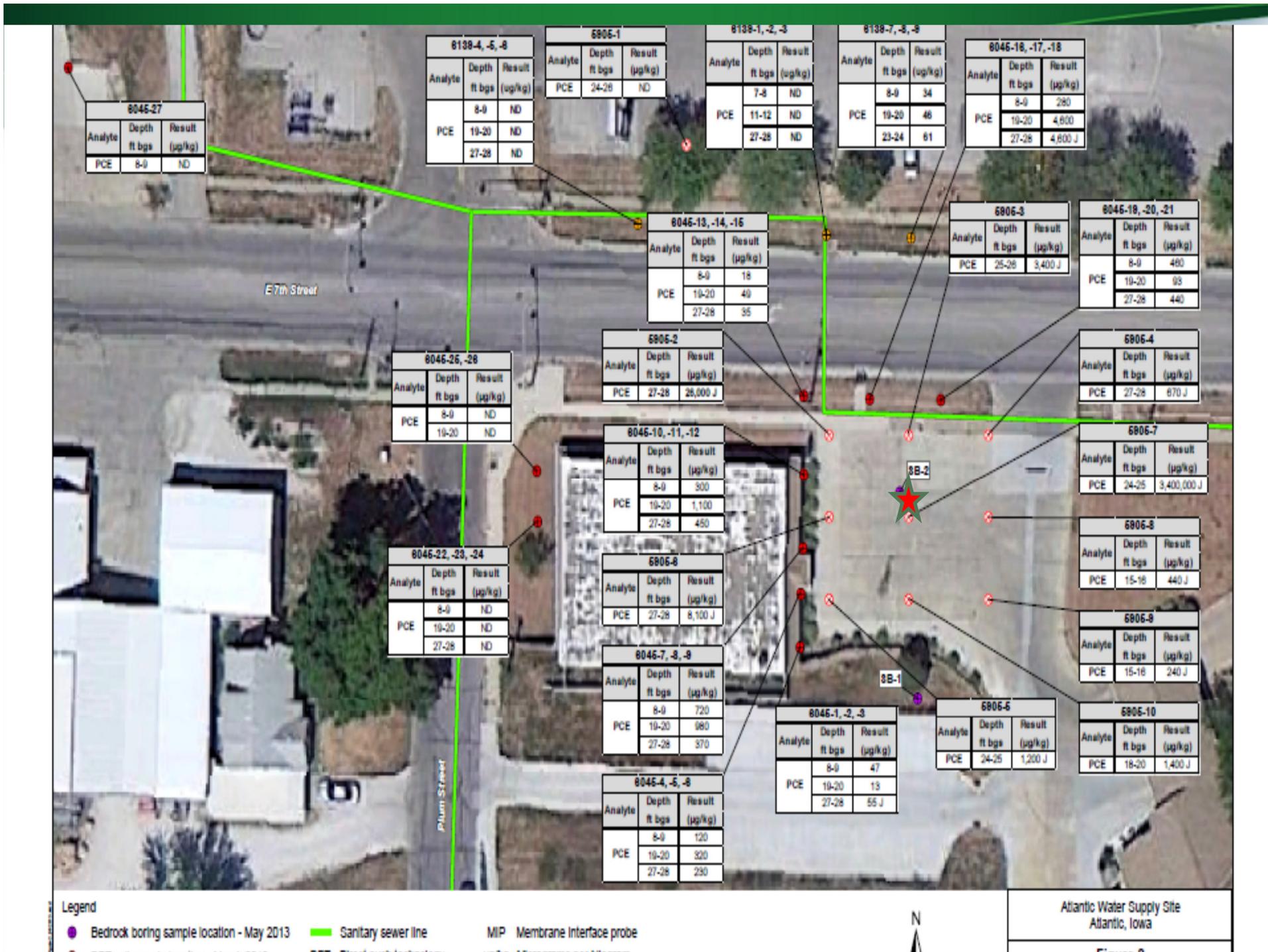
- Borehole location
  - ◆ Monitoring well location
  - Piezometer location
  - Temporary well sample location
  - Public water supply well location
  - Isoconcentration contour deep well (> 40 ft bgs)
  - Isoconcentration contour shallow well (< 40 ft. bgs)
  - Street
- ft bgs Feet below ground surface



Source: Bing Maps Aerial Imagery Web Mapping Service, 2011; HSP-Gold, 2007; Snyder and Associates, 4/4/99; U.S. EPA Environmental Response Team, Response Engineering and Analytical Contract, Figure 1, Atlantic Iowa Groundwater PCB, 2005.

Atlantic Water Supply Site  
Atlantic, Iowa

Figure 6  
Isoconcentration Contour Map



8045-27		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	8-9	ND

8138-4, -5, -8		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	8-9	ND
PCE	19-20	ND
PCE	27-28	ND

6905-1		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	24-26	ND

8138-1, -2, -3		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	7-8	ND
PCE	11-12	ND
PCE	27-28	ND

8138-7, -8, -8		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	8-9	34
PCE	19-20	46
PCE	23-24	61

8045-18, -17, -18		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	8-9	280
PCE	19-20	4,800
PCE	27-28	4,800 J

E 7th Street

8045-25, -28		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	8-9	ND
PCE	19-20	ND

6905-2		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	27-28	28,000 J

8045-13, -14, -15		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	8-9	18
PCE	19-20	40
PCE	27-28	35

6905-3		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	25-26	3,400 J

8045-18, -20, -21		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	8-9	480
PCE	19-20	93
PCE	27-28	440

6905-4		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	27-28	670 J

8045-10, -11, -12		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	8-9	300
PCE	19-20	1,100
PCE	27-28	450

3B-2

6905-7		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	24-25	3,400,000 J

8045-22, -23, -24		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	8-9	ND
PCE	19-20	ND
PCE	27-28	ND

6905-8		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	27-28	8,100 J

6905-8		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	15-16	440 J

8045-7, -8, -9		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	8-9	720
PCE	19-20	980
PCE	27-28	370

3B-1

6905-8		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	15-16	240 J

8045-1, -2, -3		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	8-9	47
PCE	19-20	13
PCE	27-28	55 J

6905-5		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	24-25	1,200 J

6905-10		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	18-20	1,400 J

8045-4, -5, -8		
Analyte	Depth ft bgs	Result (µg/kg)
PCE	8-9	120
PCE	19-20	320
PCE	27-28	230

Plum Street



Atlantic Water Supply Site  
Atlantic, Iowa

Figure 2